In the Claims

1. (Previously Presented) A stainless steel separator for fuel cells having gas channels including grooves and projections for partitioning the grooves, the separator having a composition comprising:

about 0.03 mass percent or less of carbon;

about 0.03 mass percent or less of nitrogen, the total content of carbon and nitrogen being about 0.03 mass percent or less;

about 16 mass percent to about 45 mass percent chromium, and

about 0.1 mass percent to about 3.0 mass percent molybdenum,

wherein the separator has a contact resistance of about 100 $m\Omega \cdot cm^2$ or less and the projections have an arithmetic average surface roughness Ra in the range of about 0.01 to about 1.0 μm and a maximum height Ry in the range of about 0.01 to about 20 μm.

2. (Cancelled)

3. (Original) The stainless steel separator according to Claim 1, further comprising about 0.001 to about 0.1 mass percent silver.

4. (Original) The stainless steel separator according to Claim 1, further comprising about 1.00 mass percent or less of silicon and about 1.00 mass percent or less of manganese.

5. (Original) The stainless steel separator according to Claim 1, further comprising about 0.005 to about 0.5 mass percent vanadium.

6. (Original) The stainless steel separator according to Claim 1, further comprising at least one of titanium and niobium in a total amount of about 0.01 to about 0.5 mass percent.

7. (Previously Presented) A stainless steel separator for fuel cells having gas channels including grooves and projections for partitioning the grooves, the separator having a composition comprising:

about 0.03 mass percent or less of carbon;

about 0.03 mass percent or less of nitrogen, the total content of carbon and nitrogen being about 0.03 mass percent or less;

about 16 mass percent to about 45 mass percent chromium, and

about 0.1 mass percent to about 3.0 mass percent molybdenum,

wherein the separator has a contact resistance of about 100 $m\Omega \cdot cm^2$ or less; and

a BA film having a thickness in the range of about 10 to about 300 nm on a surface of at least some of the projections.

8. (Previously Presented) A method for making a stainless steel separator for fuel cells having gas channels including grooves and projections for partitioning the grooves comprising:

hot-rolling a slab to form a hot-rolled sheet having a predetermined thickness, the slab comprising about 0.03 mass percent or less of carbon, about 0.03 mass percent or less of nitrogen, the total content of carbon and nitrogen being about 0.03 mass percent or less, about 15 mass percent to about 45 mass percent chromium, and about 0.1 mass percent to about 3.0 mass percent molybdenum;

annealing and pickling the hot-rolled sheet; and

cutting the hot-rolled sheet to form the stainless steel separator.

9. (Original) The method according to Claim 8, wherein surface roughness of the projection is adjusted so that the arithmetic average surface roughness Ra is in the range of about 0.01 to about 1.0 μm and the maximum height Ry is in the range of about 0.01 to about 20 μm.

10. (Previously Presented) A method for making a stainless steel separator for fuel cells having gas channels including grooves and projections for partitioning the grooves comprising:

hot-rolling a slab to form a hot-rolled sheet having a predetermined thickness, the slab comprising about 0.03 mass percent or less of carbon, about 0.03 mass percent or less of nitrogen, the total content of carbon and nitrogen being about 0.03 mass percent or less, about 16 mass percent to about 45 mass percent chromium, and about 0.1 mass percent to about 3.0 mass percent molybdenum;

annealing and pickling the hot-rolled sheet;

cold-rolling the hot-rolled sheet to form a cold-rolled sheet having a predetermined thickness;

press-forming the cold-rolled sheet to form the stainless steel separator, wherein surface roughness of projections applied to the sheet is adjusted so that the arithmetic average surface roughness Ra is in the range of about 0.01 to about 1.0 μm and the maximum height Ry is in the range of about 0.01 to about 20 μm.

11. (Original) The method according to Claim 10, further comprising annealing and pickling the cold-rolled steel sheet.

12. (Cancelled)

13. (Original) The method according to Claim 8, wherein the stainless steel separator further comprises about 0.001 to about 0.1 mass percent silver.

14. (Original) The method according to Claim 9, wherein surface roughness is adjusted by pickling the separator in aqua regia or an acid mixture before or after cutting.

15. (Previously Presented) The method according to Claim 10, wherein surface roughness is adjusted during press-forming or by pickling the separator in aqua regia or an acid mixture before or after press-shaping.

16. (Original) The method according to Claim 15, wherein the surface roughness is adjusted by press-forming wherein a mold used in press-forming has an arithmetic average surface roughness Ra in the range of about 0.01 to about 2.0 μm and a maximum height Ry in the range of about 0.01 to about 50 μm.

17. (Original) The method according to Claim 8, wherein the stainless steel separator further comprises about 1.00 mass percent or less of silicon and about 1.00 mass percent or less of manganese.

18. (Original) The method according to Claim 8, wherein the stainless steel separator further comprises about 0.005 to about 0.5 mass percent vanadium.

19. (Original) The method according to Claim 8, wherein the stainless steel separator further comprises at least one of titanium and niobium in a total amount of about 0.01 to about 0.5 mass percent.

20. (Original) The method according to Claim 8, wherein a BA film having a thickness in the range of about 10 to about 300 nm is formed on surface of at least some the projections of the stainless steel separator.

21. (Original) A solid polymer fuel cell comprising a polymer film, electrodes, and the separator according to Claim 1.

22. (Previously Presented) The stainless steel separator according to Claim 7, wherein the projections have an arithmetic average surface roughness Ra in the range of about 0.01 to about 1.0 μm and a maximum height Ry in the range of about 0.01 to about 20 μm.

23. (Previously Presented) The stainless steel separator according to Claim 7, further comprising about 0.001 to about 0.1 mass percent silver.

24. (Previously Presented) The stainless steel separator according to Claim 7, further comprising about 1.00 mass percent or less of silicon and about 1.00 mass percent or less of manganese.

25. (Previously Presented) The stainless steel separator according to Claim 7, further comprising about 0.005 to about 0.5 mass percent vanadium.

26. (Previously Presented) The stainless steel separator according to Claim 7, further comprising at least one of titanium and niobium in a total amount of about 0.01 to about 0.5 mass percent.

27. (Previously Presented) The method according to Claim 10, wherein the stainless steel separator further comprises about 0.001 to about 0.1 mass percent silver.

28. (Previously Presented) The method according to Claim 10, wherein the stainless steel separator further comprises about 1.00 mass percent or less of silicon and about 1.00 mass percent or less of manganese.

29. (Previously Presented) The method according to Claim 10, wherein the stainless steel separator further comprises about 0.005 to about 0.5 mass percent vanadium.

30. (Previously Presented) The method according to Claim 10, wherein the stainless steel separator further comprises at least one of titanium and niobium in a total amount of about 0.01 to about 0.5 mass percent.

31. (Previously Presented) The method according to Claim 10, wherein a BA film having a thickness in the range of about 10 to about 300 nm is formed on surface of at least some the projections of the stainless steel separator.

32. (Cancelled)

33. (Currently Amended) A solid polymer fuel cell comprising a polymer film, ~~electordes~~ electrodes, and the separator according to Claim 7.

34. (Cancelled)